

REMARKS/ARGUMENTS

Claims 1,2,4,6,8, and 10-23 are pending in this Application. Claims 13-18 and 20-21 are withdrawn from consideration. The undersigned notes that claims 11 and 12 were brought back into prosecution in the Response of February 5, 2009, being designated as “Withdrawn-Currently Amended”. The most recent Office Action does not appear to reflect the pendency of these claims, and some clarification from the Examiner would be appreciated.

Claims 1,2,4,6,8, 10,19, and 22-23 stand rejected. Each of the rejections has been reviewed in detail, during previous prosecution. The present Response will be directed primarily to the Examiner’s response to the previous arguments, along with a brief explanation of the accompanying Affidavit under Rule 132.

The attributes of the presently-claimed nickel alloys have been described in detail previously. These specialized alloys have at least three distinctive characteristics or “inclusions”. First, they require the presence of selected amounts of a core “sub-group” of elements – aluminum (Al), titanium (Ti), and niobium (Nb). Second, the atomic ratio of aluminum to titanium must be within the range of 0.5 to about 1.5, in preferred embodiments. Third, preferred embodiments of the invention are substantially free of tantalum, as also discussed previously.

Claims 1-2,4,6,8,19 and 22-23 stand rejected under 35 U.S.C. 103(a), as being unpatentable over Hamada (JP 11-217644). As in the previous Response, Applicant acknowledges that there is some overlap between some of the constituents of the present invention, and those of Hamada. The Examiner has again pointed out that overlap on pages 3,4 and 9 of the current Office Action. However, Hamada’s compositions include no specific recognition of the three critical features set forth above. The Examiner has maintained, in part, that the claimed compositions are obvious because Hamada discloses the “same utility”. However, the cited reference contains no suggestion of the very specific utility explained previously for this invention: the careful balance between creep strength, “weldability”, and fatigue cracking resistance.

The rejection of claim 10 (page 5 of the Office Action) in view of Hamada and the Twigg et al reference (U.S. Patent 3,723,108-“Twigg”) has also been discussed previously. Again, Twigg’s disclosure of specified boron levels does not appear to add significantly to the teachings of Hamada.

Moreover, the rejection of claims 1,2,4,6,8, 10,19, and 22-23 under 35 U.S.C. 103(a), as being unpatentable over Wheaton (U.S. 3,561,955), was also the subject of previous discussion. Wheaton is directed to compositions which are primarily characterized by sulfidation resistance. While Wheaton describes particular titanium-aluminum levels to promote the gamma prime phase, no suggestion is made of Ti-Al proportions which minimize or prevent formation of the eta phase.

On pages 11 and 12 of the current Office Action, the Examiner appears to maintain that the present composition could be obtained from the teachings of Wheaton, by way of routine investigation by those skilled in the art. Applicant emphatically submits that the specific, claimed compositions represent discoveries beyond “routine investigation”. These discoveries resulted in part from a response to industrial performance challenges which were not apparent in 1966 – the time period of the Wheaton invention.

During an interview with the Examiner and his Supervisor on March 18, 2009, these issues were discussed in some detail. In view of other distinctions which appeared to be apparent, relative to the Wheaton and Twigg references, the primary subject of contention involved the Hamada reference. At that time, the undersigned indicated that a declaration would be forthcoming, regarding features of the present invention, and various aspects of Hamada.

The attached Declaration under Rule 132 is based on the observations of two of the inventors in the present case, each of whom is very familiar with high temperature alloy compositions based on nickel or cobalt. The inventors are also familiar with the teachings of the Hamada reference, and the manner in which it is being applied to their own, claimed invention.

One point emphasized in the Declaration involves Hamada’s broad teachings. In general, the inventors emphasized that Hamada fails to discriminate

between compositions which would be part of Applicant's own invention, and compositions which would not be part of the present invention. Four aspects of the reference were cited to illustrate this point (though more aspects could have been discussed as well): Hamada's allowance of 0% titanium; Hamada's allowance of insufficient levels of aluminum; Hamada's allowance for tantalum being present; and Hamada's failure to suggest or require specific aluminum-titanium ratios. (Applicant also notes that test data already present in the patent Application (paragraph 33 et seq.; and Table 1), related to preferred embodiments which exclude tantalum).

For the present experiments, the inventors evaluated an alloy sample falling within the scope of Hamada, having an Al-Ti ratio of 0.4, with an alloy sample of the present invention, having an Al-Ti ratio of 1.3. (These were atomic ratios). Details regarding the preparation of test samples of the alloys are provided in the Declaration. As noted in earlier prosecution, one of the primary attributes of these alloys is "creep properties", and creep strength was one of the properties studied in detail.

The results demonstrated very dramatic increases in creep resistance, for the sample which was based on compositional features of the present invention. Figure 1 represents a graphical view of those results. Other details regarding the implications of this data are provided in the Declaration, as well.

The present Response is directed to specific points brought out in prosecution, and should not raise any new issues. Applicant submits that the remaining, rejected claims (and the two additional claims brought back into the case) should now be in allowable form. After reviewing this Response, it may be helpful for the undersigned and the Examiner to see if any remaining issues can be quickly resolved, by way of a telephone conference. Arrangements for an interview will be initiated shortly.

Please charge all applicable fees associated with the submission of this Response, and any other fees applicable to this Application, to the Assignee's Deposit Account No. 07-0868.

Respectfully submitted,



Francis T. Coppa  
Reg. No. 31,154

General Electric Company  
Global Research  
Patent Docket Rm. Bldg. K1-4A59  
Niskayuna, NY 12309  
Date: 6/22/09  
Telephone: (518) 387-7530